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APPLICANT: HALL, et al.

EXAMINER: VENNE, Daniel V.

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TITLE: GAS EXPANSION TRUNK FOR MARINE VESSELS

STATEMENT OF FILING BY EXPRESS MAIL 37 C.F.R. § 1.10

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DECLARATION OF CAPT. THOMAS J. SCOTT UNDER 37 CFR §1.132

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dated: October 22, 2010

I, Capt. THOMAS J. SCOTT, hereby declare as follows:

1. I am a named inventor in the above-identified application. I am a United States citizen and my address is c/o Vela International Marine, P. O. Box 26373, Dubai, U.A.E.

2. My professional education, licenses and achievements and personal data are as follows:

B.S. Degree in Marine Transportation 1977 – SUNY Maritime College. 3.0 GPA;
VFW Marine Award.

Licensed Master of unlimited gross tons by USCG and Liberian authorities;

USCG licensed First Class Pilot on Delaware Bay and River; F.C.C. General Operators License;

Sole inventor in vessel related patents for compliance with SBT ; US Patent No.: 4,759,307; MARPOL13F&G; US Patent No.: 6,009,821 and Ballast Water Management US Patent No.: 6,766,754 (AUBAFLOW);

Published several articles in Lloyd's List, Sea Trade and Saudi Aramco's Journal of Technology; and

Provided expert testimony at arbitrations.

3. Since September 1997, I have been the technical advisor to the President of Vela International Marine, a subsidiary of Saudi Arabian Oil Company, the assignee of the above-identified application. In this capacity I am responsible for:

Ensuring company compliance with ISM and ISPS code and ISO 9000 compliance requirements. "Salvage Master" in Saudi Aramco's and Vela's USCG approved ERP.

Supervised two salvage responses and settled eight general average (GA) claims as charterer's rep.

Acting as "Company's Representative" at various Industry and Governmental forums such as:

OCIMF - Company GPC, and PTC representative. Founding member of the SIRE committee, and participated on various Working Groups such as CAP/CAS consolidation, STS Guide and H2S guide.

IMO - Company Representative on the IMO's Industry Task Force and Global Ballast Program.

Saudi Delegation Advisor - on the IMO's: MEPC, MSC and STCW committees - Authored White Papers presented at plenary sessions: "Single Hull Phase-Out Extensions" and "Ballast Management".

Registered Lobbyist - For Saudi Aramco 2002/3. Testimony before USCG rule making panel.

Technical Advisor - To BBC's / Natural History Unit production of "Invaders from the Sea" in 2005.

Accident Investigations - Lead seven accident investigations on ship groundings, fires and explosions.

CEMTPP (member) - Center for Energy, Marine Transportation and Public Policy. A Columbia University "Think-Tank" developed to advance alternative transportation and energy solutions.

4. From August 2005 to present, I have also served in the capacity of Manager of Human Resources for Vela International.
5. From June 1994 to August 1999, I was the Superintendent-Technical Support Division, for Vela International. In this capacity, I was responsible for three professional groups:
 - Quality Assurance & Vetting Group – Primary responsibility: Regulatory Compliance and ship vetting.
 - Environmental/Regulatory Affairs Unit – Primary responsibility: Response Planning and Drills.
 - Business Services Group – Primary responsibility: Shipboard and shore based IT functions.

6. From November 1989 to June 1994 I served as Operations/Chartering Specialist for Saudi Petroleum NY/London/Dhahran. In this capacity I was responsible for Coordinating Scheduling operations for delivery of 2.3mmbd crude and products into U.S. Gulf lightering¹ and storage and in the Red Sea to Arabian Gulf. Chartered tankers to cover controlled fleet schedule holes.

7. I am familiar with the disclosure and the claims of the above-identified application. In particular, I am familiar with the latest substantive Office Action mailed May 14, 2009, as well as the latest claims filed on June 14, 2010.

8. I am also familiar with the disclosures of the patents which are of record in the above-identified application; in particular, I am familiar with the patents which were applied in the rejections contained in the latest Office Action of May 14, 2009, namely US Patent No. 4,233,922 to Conway and US Patent No. 5,398,629 to Wasenius.

9. The amended Claims 1, 6, 7, 9, 14, 15, 20, 21, 22, 23, 24 and 26 of the present application are attached to this Declaration as Appendix A.

10. In the latest Office Action, Claim 1 was rejected as being unpatentable over Conway '922 in view of Wasenius '629.

¹. Lightering is the process of transferring cargo between vessels of different sizes, usually between a barge and a bulker or oil tanker. Lightering is undertaken to reduce a vessel's draft in order to enter port facilities which cannot accept very large ocean going vessels.

11. THE PRESENT INVENTION

The present invention relates to the unique provision of expansion trunks placed individually on the ship's deck and directly above each associated tank which contains a fluid. Tankers generally earn freight by the amount of liquid cargo they carry in weight. If the internal volume of a ship – i.e., generally referred to as a “Cubic Capacity” or “Capacity” – is increased, the ship thereby earns increased freight by the amount of weight the volume can accommodate (i.e., cubic meters X specific gravity of cargo X freight).

According to the present invention, the internal volume of the vessel is increased by essentially transferring the two percent under-deck expansion of a typical ship's tank to an “Expansion Trunk”, above the deck head. Accordingly, the present invention makes it possible to effectively increase the internal volume of the ship's tank capacity without physically increasing the actual volume of the ship.

The present invention can be incorporated into a newly designed ship or retrofitted to any system design.

The “Expansion Trunk” would typically be made of the same material as the ship's deck. It would typically be 10 to 40 meters in length, by 5 to 15 meters wide, by 2 to 3 meters high and it would be built directly on top of the existing deck of a tanker immediately above the tank it serves, thus increasing each tank's liquid carrying capacity by between 100 and 1,800 cubic meters.

The portions of the deck plates enclosed by the “Expansion Trunk” should be cut with slots sufficient to allow free communication between the existing tank and its associated “Expansion Trunk”. The slots – which comprise a significant feature of the invention – should be cut between the deck longitudinals on sufficient deck plates enclosed by the “Expansion

Trunk" according to the classification Society rules which govern the ship's Stability and Trim rules. "Slotting" needs to be done to minimize strength losses in the deck plate, while facilitating adequate communication between the tank and the trunk. This feature is neither disclosed nor suggested in the prior patents of record.

It has been determined from experimentation and experience, that these considerations are critical to the proper working of the invention, while retaining the structural integrity of the deck and the individual trunks.

Preferably, the slots are typically 2 to 3 cm wide by about $\frac{1}{2}$ of the plate's length. Not every deck plate needs to be slotted, but sufficient slotting needs to be created so there is less than 0.5 psi difference between the sides of the slots at 200% of the tank's maximum loading rate, again, to retain the integrity of the deck.

The "Expansion Trunk" needs to be fitted as far forward as possible and proximate the highest point of the tank above the baseline of the vessel to assure proper venting.

Existing venting via the ship's Inert Gas (IG) line and risers must be redirected so that the tank vents through the "Expansion Trunk" rather than by existing means. Additionally Crude Oil Washing Piping and Machines will have to be retrofitted in line with Classification Society Requirements and the Trim and Stability Book will have to re-calculated to include the added space.

12. Based upon use and experience it has been found that certain of the limitations which appear in the claims of record in the above-identified application are critical to the proper working of the invention. In other words, in the absence of strictly following such criteria it has been found that the effectiveness of the invention and the effective increased capacity of the ship does not rise to optimum levels.

13. Claim 1 – in Claim 1 of the subject application, the following recitations are presented:

- 1) “a plurality of apertures in the form of elongated slots in said deck plate ...”
- 2) “... said trunk having an interior volume of at least 2% of the total capacity of the tank, and being between about 10 and 40 meters in length, about 5 to 15 meters wide, and about 2 to 3 meters high...”.

These particular recitations are critical in that they optimize the effectiveness of the combination of the tank and the trunk. They are thereby considered to be critical to the functioning of the invention; furthermore, they are neither disclosed nor suggested in the prior art patents of record.

14. In Claim 9 the following two expressions are recited:

- 1) “... each said expansion trunk having dimensions of between about 10 and 40 meters in length, about 5 and 15 meters in width, and about 2 and 3 meters in height ...”.
- 2) “... said apertures being elongated slots between approximately 2 and 3 centimeters wide and about one-half the length of the deck plate, such that there is approximately less than 0.5 pound per inch pressure difference between the opposing tank side and trunk side of said associated deck plate when the tank is being loaded at 200% of its maximum load rate,...”.

15. In Claim 21, the following two expressions are recited:

- 1) "... each respective deck plate being provided with a plurality of apertures communicating with the respective tank therebelow, ..."; and
- 2) "... said apertures being positioned proximate the highest point of the tank above the baseline of the vessel, and being elongated slots between approximately 2 and 3 centimeters wide and about one-half the length of the deck plate, such that there is approximately less than 0.5 pound per inch pressure difference between the opposing tank side and trunk side of said associated deck plate when the tank is being loaded at 200% of its maximum load rate, ...".

These limitations are also significant to the proper functioning of the invention, and are neither disclosed nor suggested in the prior art of record, particularly the Wasenius '629 and Conway '922 patents.

16. In Claim 24 the following expressions are recited:

- 1) "...each said expansion trunk having dimensions of between about 10 and 40 meters in length, about 5 and 15 meters in width, and about 2 to 3 meters in height, ..."; and
- 2) "...said apertures being elongated slots between approximately 2 and 3 centimeters wide and about one-half the length of the deck plate, such that there is approximately less than 0.5 pounds per inch pressure difference between

the opposing tank side and trunk side of said associated deck plate when the tank is being loaded at 200% of its maximum load rate, ...”.

17. In Claim 26, the following expression is recited:

1) “...said apertures being elongated slots between approximately 2 and 3 centimeters wide and about one-half the length of the deck plate, such that there is approximately less than 0.5 pounds per inch pressure difference between the opposing tank side and trunk side of said associated deck plate when the tank is being loaded at 200% of its maximum load rate, ...”.

Again, these limitations are extremely significant to the proper functioning of the invention.

18. **THE PRIOR ART**

In the Office Action mailed May 14, 2009, reference is made to the Conway '922 patent, stating that the vessel with the plurality of liquid cargo tanks is shown in figure 1 of Conway. It is further stated that the tanks 2 (i.e., in Conway) are located below the deck plate 13 as shown in figure 1 of Conway. At this point any similarity between Conway and the claimed invention is ended.

The Office Action then goes on to state that:

1) Conway does not disclose tanks having a generally highest point above the baseline of the ship;

2) In Figure 8 Wasenius (allegedly) discloses Middle tanks having a highest point above the baseline of the ship and that it would (allegedly) have been obvious to modify the deck plate of Conway such that middle tanks 14 have a highest point above the baseline of the ship similar to what is shown in Figure 8 of Wasenius.

In this regard, Wasenius merely shows in FIG. 8, three cargo tanks 2 left, middle and right, which are in a location where tanks are usually located ... i.e., above the baseline of the ship.

The Office Action then goes on to state:

“...motivation to make such a change is to put a slope on the deck plate so that water will run off of the deck plate.”

It is very difficult to reconcile the significance of the “motivation” statement contained in the Office Action with the disclosures in Conway and Wasenius, and how such “considerations” and “speculative statements” can render the claims of the present invention to be obvious. In other words, it is respectfully submitted that there is little or no relation or connection between this “motivation” statement and the claimed invention. In fact, this “motivation” statement was made by a previous examiner in an Office Action mailed March 26, 2008, and as well, it had little or no significance to the claimed invention at that time. Accordingly, clarification is requested!

The Office Action then goes on to state that Conway discloses an aperture in figure 2 with an expansion trunk 15 positioned thereover. The Office Action then states:

“... however this aperture is not a plurality of apertures nor is it positioned substantially as close to the highest point of the tank above the baseline of the ship.”

Conway in fact, discloses an aperture between the trunk and tank seemingly equal in size to the size of the trunk. Wasenius only shows tanks with a hatch at the top.

It is respectfully submitted that these statements of the differences between the prior art and the claimed invention are clearly supportive of the allowability of the claims of the present application.

In the Office Action, Wasenius is stated to disclose a plurality of "apertures" beneath "trunk 10". In fact, Wasenius is silent with regard to such alleged "apertures".

In the Office Action it is stated further that:

"... It would further have been obvious to make the aperture beneath the trunks 15 of Conway a plurality of apertures and to position the middle tank trunks as close to the highest point of the middle tanks with respect to the baseline of the ship in view of the teaching of Wasenius."

The Office Action then goes on to state:

"... the use of a plurality of apertures would somewhat control the flow of gas into and out of the trunk while preventing sloshing of oil into the tank. Further locating the trunk at the highest point of the middle tank would allow all the gas in the tank to enter the trunk 15 of Conway."

In this regard the above statement (i.e., in the Office Action) appears to support the argument for allowance of the claims by underscoring precisely, the advantages of the present invention over the prior art, which is admittedly deficient.

Next, the Office Action states that:

"Conway does not disclose that each expansion trunk is located as far forward as possible; however, Wasenius in Figure 2 teaches this concept."

In connection therewith, it states further:

"... Motivation to locate the trunk (i.e., of Conway) at such a location is to have support for it provided by the forward bulkhead of the tank."

OBSERVATION:

The provision of elongated slots in the present invention avoids weakening of the deck plates, which is precisely one of the reasons for providing such slots. Why then should the invention be concerned with positioning the trunk at such a (forward) location only in order to be supported by a bulkhead, when a critical feature of the invention (i.e., the spaced elongated slots) has already taken this aspect into account. Therefore, the motivation statement in the Office Action is respectfully submitted to be unrelated to the claimed invention.

The following statement at page 3 of the Office Action contains a list of deficiencies in the prior art, which further emphasize what is not disclosed in Conway and Wasenius:

"The combination of Conway and Wasenius does not disclose that the slots have a sufficient area such that there is approximately less than a 0.5 pound per square inch pressure difference between the opposing tank side and trunk side of the deck plates when the tank is being loaded at 200% of its maximum load, that the slots are between 2 and 3 centimeters wide and one half of the length of a deck plate, that the trunk 10 has an interior volume of at least

2% of the volume of the respective tank there below for liquid cargo storage, that the apertures are located as far aft on the tank as is possible, that the trunk has dimensions of between about 10 and 40 meters in length, about 5 and 15 meters in width and about 2 and 3 meters height, that the trunk encloses a volume at least that required for compliance with maritime regulations for an expansion space for liquid cargo storage, that the expansion space of each trunk for fluid cargo storage is at least about 2% of the amount of under deck space for use as fluid cargo storage, and that the slots are at least one half the length of the deck plate."

Then the Office Action further states:

"However, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to modify the trunks and apertures or slots of the combination of Conway and Wasenius such that the slots have a sufficient area such that there is approximately less than a 0.5 pound per square inch pressure difference between the opposing tank side and trunk side of the deck plates when the tank is being loaded at 200% of its maximum load, that the slots are between 2 and 3 centimeters wide and one half of the length of a deck plate, that the trunk 10 has an interior volume of at least 2% of the volume of the respective tank there below for liquid cargo storage, that the apertures are located as

far aft on the tank as is possible, that the trunk has dimensions of between about 10 and 40 meters in length, about 5 and 15 meters in width and about 2 and 3 meters height, that the trunk encloses a volume at least that required for compliance with maritime regulations for an expansion space for liquid cargo storage, that the expansion space of each trunk for fluid cargo storage is at least about 2% of the amount of under deck space for use as fluid cargo storage, and that the slots are at least one half the length of the deck plate.”

Finally, the following “Motivation” statement is presented in the Office Action:

“Motivation to make these modifications are found in the fact that the apertures and trunk are going to be made a dimension and volume to meet any requirements specified by a governing body so that the vessel can be used for what it is intended.”

This “Motivation” statement too, is a word-for-word copy of the same statement presented in a previous Office Action mailed August 8, 2007 by a previous Examiner in this application. In essence, this statement prejudices the inventors with their own disclosure by merely dismissing all of our significant features as the next obvious expedients.

It is respectfully submitted that in my many years of experience in the technology of the subject matter of the invention, it has never occurred to me or my colleagues that so many features and parameters would come as the next obvious expedient when attempting to make improvements in transportation of cargo as contemplated in the subject application. In short, it appears that to maintain the alleged obviousness of the present invention in view of Conway and

Wasenius is to prejudice the applicants with their own disclosure; or in other words, now that we told you how to do it, you opine that it seems quite obvious.

Reconsideration is respectfully requested.

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: *21 Sept 2010*


THOMAS J. SCOTT